

*Emerson-Thoreau Amble* by Cherrie Corey

# Appendix

## Priority Open Space Resources: Status and Concerns

This section takes a closer look at the large intact areas and major corridors of Concord's Open Space Framework (see Section 2). In the *1992 Open Space Plan*, each area was documented in detail, and its ecological, historical/cultural, recreational and educational/research values discussed. Protection and management objectives were stated for each area. The 2004 Plan built on that foundation (which remains a useful reference) by briefly describing the areas, illustrating them with maps and identifying the primary value of each area. Then key land-protection threats, as well as important land management issues, are highlighted. The 2015 Open Space Framework expands the natural areas to include BioMap2 core habitat, expands the agricultural areas to include adjacent Chapter 61A lands, and adds two additional natural areas and one additional built area. Improved mapping of these areas is also provided to better understand the status and connectivity of these lands. This framework has been found to be a useful tool in evaluating Town decisions and initiatives.

### A) Large Natural Areas

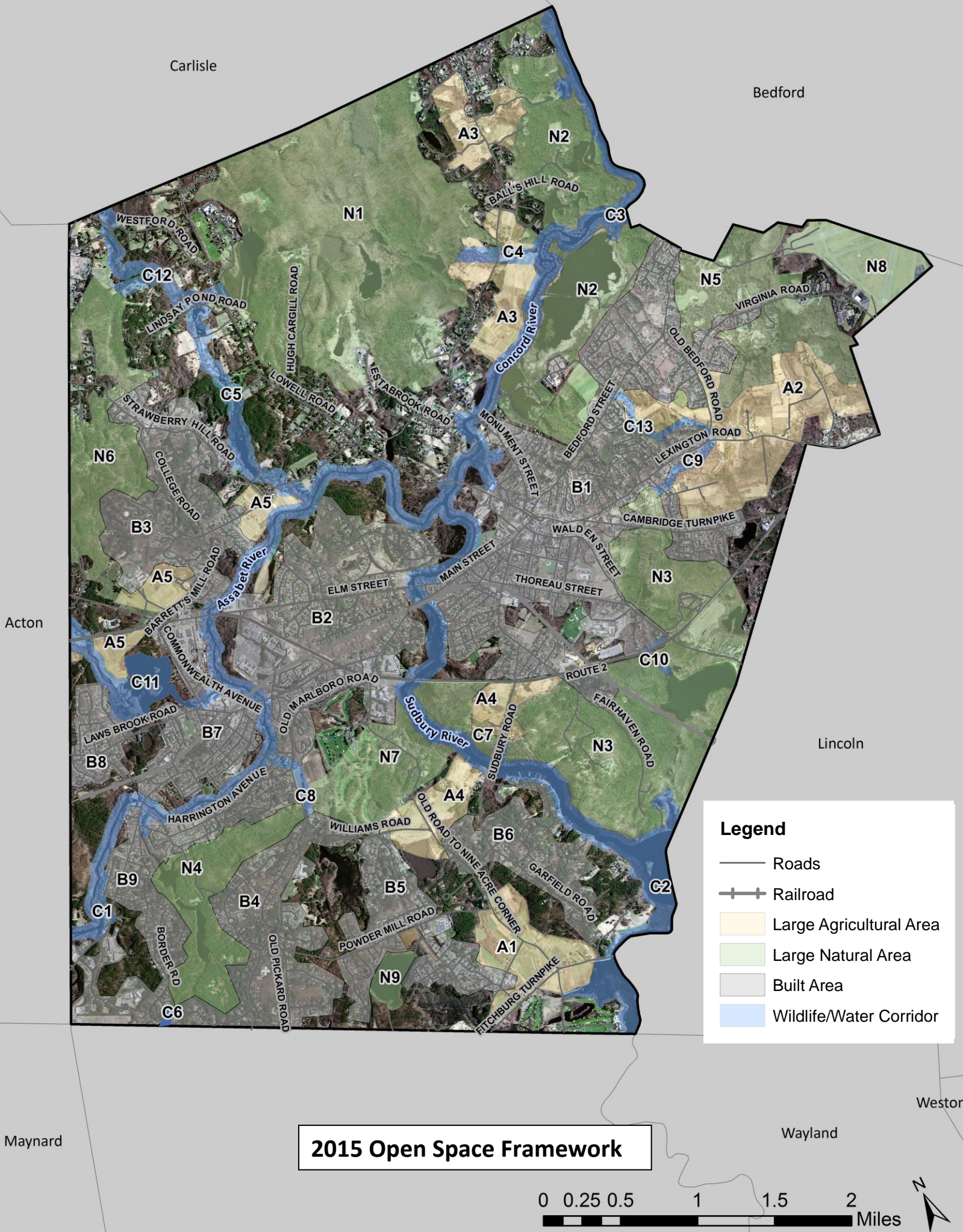
The pressure of real estate development and the encroachment of buildings, particularly on the perimeters and occasionally in the cores of the large patches, remain of concern in all of the large natural areas.<sup>31, 36, 11</sup> Similarly, increased isolation from other large areas due to the loss of corridor connections is a concern. Concord continues to take significant measures to permanently protect many important

parcels, most recently exemplified by the acquisition of the McGrath house lot at 449 Barrett's Mill Road. But others remain unprotected.

### *Estabrook Woods Area (N1)*

Concord's largest remaining tract of essentially 1,550 acres of intact woodland extends from Lowell Road on the west to Monument Street on the east, into Carlisle on the north and to the end of pavement on Estabrook Road on the south.<sup>67, 37, 30, 2</sup> Over half, 900 acres, of the Estabrook Woods area in Concord have been protected – quite an impressive statistic. The biggest single step occurred in 1997 when Harvard University protected its 672 acres as open space by recording a Notice of Public Charitable Obligation in the Middlesex County Registry of Deeds. Neighboring landowners met Harvard's challenge by placing an additional 250 acres in conservation in Concord alone.

The Estabrook Woods area contains almost all of Concord's land that is relatively remote from roads. The area not only has the size and form of a large patch of intact forest, but it is known to function as one. Birds and mammals that breed and live only in interior forests, such as the northern goshawk and fisher, are known to exist there. The Massachusetts Division of Fish and Wildlife identified the Estabrook Woods as a "significant wildlife area due to habitat diversity and area size." Special sites within the Estabrook Woods area include old forest stands, two sites with high biodiversity for plants, and five





## Estabrook Woods Natural Area

### Open Space Framework 2013

- Agricultural
- Natural
- Built
- Corridor
- Estabrook Woods Natural Area

- Town Conservation Lands
- Other Town Owned Lands
- Conservation Restrictions
- Other Protected Lands
- Land Trust Lands
- Public Schools
- State-Owned Lands
- Federal-Owned Lands
- Rivers and Ponds
- Roads
- ★ Certified Vernal Pools

### Special Sites

- Ecological Habitat Sites
- Water Resources Sites
- Recreational Sites
- Historical Sites
- Geologic Sites
- Scenic Sites

“areas of ecological significance” as listed by the Massachusetts Natural Heritage and Endangered Species Program. In addition, distinctive geologic features include a siliceous rock outcrop, calcareous rock near the surface, large glacial erratics, and eskers. Compared to the rest of Concord, these woods have a high density of special sites. The area is also of significant archaeological value.<sup>37</sup>

Walking, cross-country skiing, and horseback riding are recreational values that benefit from a large area, extensive trail system, and scenic beauty. The research and educational value of the Estabrook Woods is important to Harvard University due to its proximity to Cambridge. Continued use of the area for educational purposes by Harvard classes, diverse research projects, and faculty and students from other universities and schools is important.

Lands owned by Harvard University and Middlesex School are the core parcels critical to protect or enhance the essential integrity of this large natural area. For Harvard’s land, vigilant efforts must be maintained so that recreation and other uses do not intrude on research and educational uses, as the essential mission of the University. Some of the Middlesex School land has been protected. This natural area continues to be threatened by development within and adjacent to its boundaries. Continued perseverance in working to reduce or reverse proposed or future development remains important, in order to sustain Concord’s most valuable large natural area.

Additional goals are important for the Estabrook Woods Area. Concord residents and the Town should work to protect parcels at the edges of the natural area, and in reducing impacts of the few houses on the land. Protection wildlife and water-protection corridors linking the Estabrook Woods Area with the Great Meadows/Ball’s Hill Natural Area to the east and the Annursnac Hill/Strawberry Hill Road are crucial to enhance wildlife usage in and between these areas. Expansion of this natural area to the west should be evaluated to protect the Spencer Brook watershed. Finally, since large size is perhaps the most valuable characteristic of the Estabrook Woods Area, land management for the area as a whole, which highlights large-size-related ecological patterns and processes may be especially appropriate.

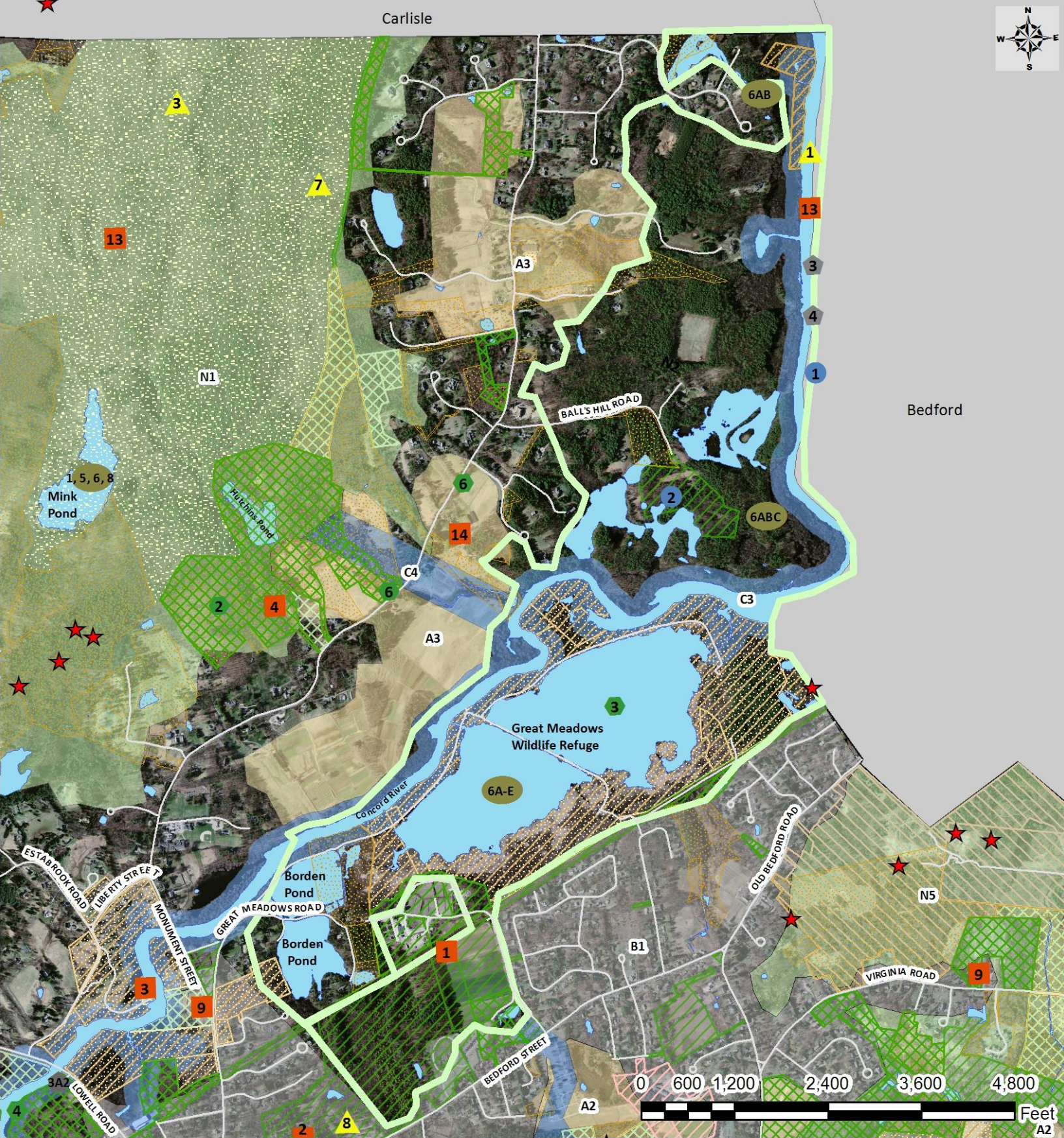
### ***Great Meadows/Ball’s Hill Natural Area (N2)***

This large natural area encompasses a stretch of Concord River – a federally designated Wild and Scenic River. The National Wildlife Refuge mainly lies on the south side, and a large wooded area including Buttrick’s, Ball’s and Davis Hills, a series of kettle-hole ponds, a sliver of refuge land, and floodplain wetlands enrich the north side of the river.<sup>56, 27, 2</sup> The refuge is well known as a site for a high diversity of wildlife, including quite a list of rare species (USF&WS Records). Water birds thrive there and the large water impoundments are especially important for migratory waterfowl. Rich opportunities for passive recreation, such as walking, canoeing, photography, and nature study are provided. The refuge has sites of archeological importance. The Ball’s Hill side of the river also has many rare species.<sup>20</sup> A noted early ornithologist, William Brewster, lived here and made extensive observations on birds and natural history.<sup>56, 27</sup> The Town has a site for its only water source, the “Brewster Well,” in the northern half of Concord. This large natural area provides major water and ecological protection for the Concord River corridor.

Although the refuge is well protected, scattered parcels on the southern side of the river are not. The U.S. Fish & Wildlife Service has been able to acquire some lands with wetlands along the river in recent years. Refuge management issues have included control of an invasive weed, water chestnut, and reducing impacts due to dogs and human uses. In contrast, the bulk of the Ball’s Hill side of the river remains unprotected and threatened by potential development.

### ***Walden Woods/Town Forest (N3)***

This large natural area of about 1,180 acres extends from the Town Forest southward across Brister’s Hill, Route 2, the former landfill, Walden Pond, the Robinson Well site, and Fairhaven Woods. Most of the area has sandy soil, with limited agricultural use; it contains the only fairly large area that apparently remained wooded over history.<sup>67, 60, 49</sup> The area includes the site of Henry David Thoreau’s cabin and was a setting for his classic, *Walden*. This heritage has resulted in Walden Woods becoming a pilgrimage site, with recognition as a USNPS Natural Historic Landmark and on the National Register of Historic Places. The topography supports a diverse and distinctive collection of habitats and species.<sup>20</sup> Walden Woods is also a magnet for a wide range of recreation, from beach swimming to shore-, boat- and ice-fishing,



### Open Space Framework 2013

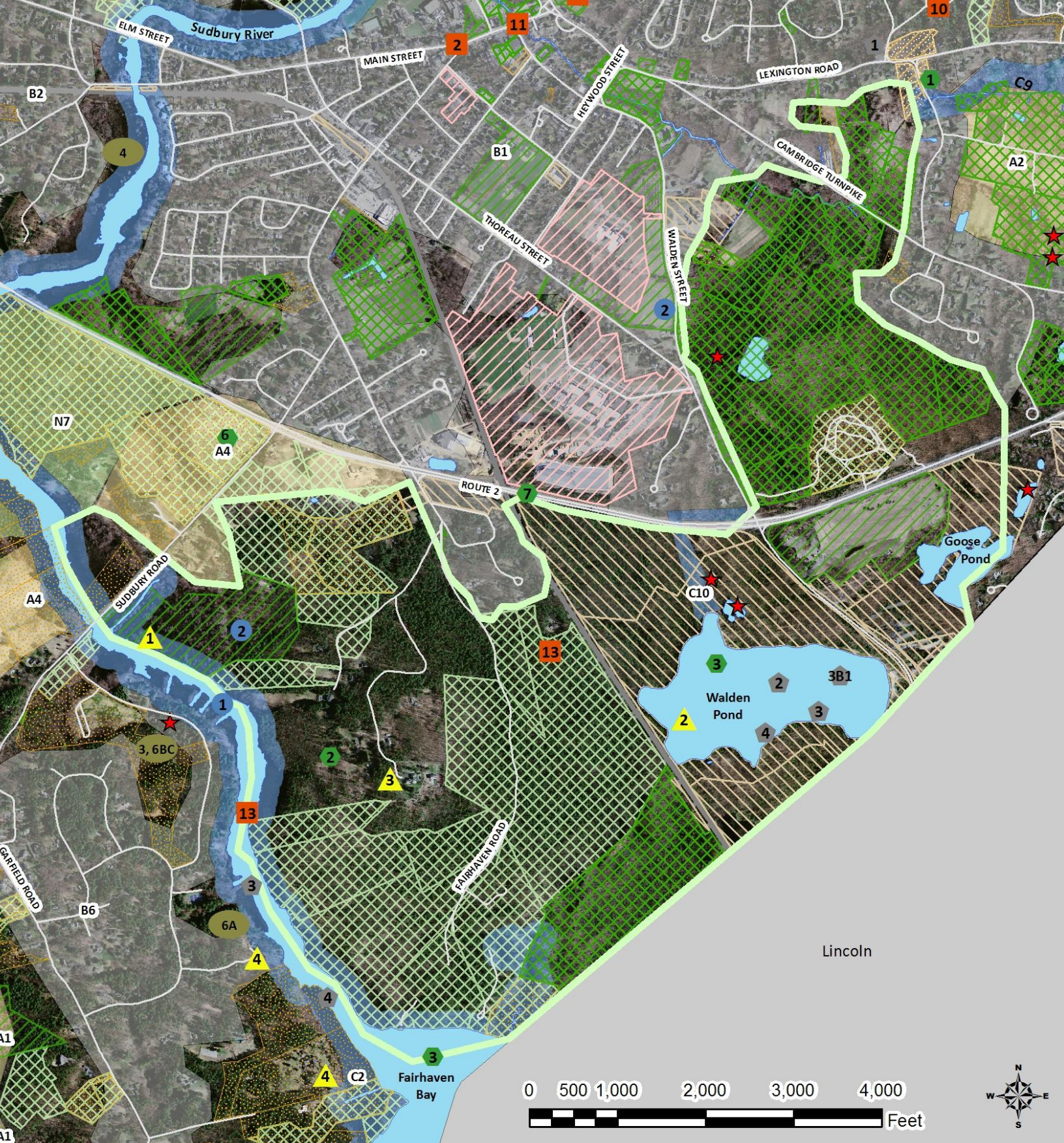
- Agricultural
- Natural
- Built
- Corridor
- Great Meadows-Ball's Hill Natural Area

### Great Meadows-Ball's Hill Natural Area

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| <span style="display: inline-block; width: 15px; height: 15px; background: repeating-linear-gradient(45deg, transparent, transparent 2px, orange 2px, orange 4px); border: 1px solid black; margin-right: 5px;"></span> Conservation Restrictions | <span style="display: inline-block; width: 15px; height: 15px; background-color: #bbdefb; border: 1px solid black; margin-right: 5px;"></span> Rivers and Ponds   |
| <span style="display: inline-block; width: 15px; height: 15px; background: repeating-linear-gradient(45deg, transparent, transparent 2px, grey 2px, grey 4px); border: 1px solid black; margin-right: 5px;"></span> Other Protected Lands         | <span style="display: inline-block; width: 15px; height: 15px; border: 1px solid black; margin-right: 5px;"></span> Roads   |
| <span style="display: inline-block; width: 15px; height: 15px; background: repeating-linear-gradient(-45deg, transparent, transparent 2px, green 2px, green 4px); border: 1px solid black; margin-right: 5px;"></span> Land Trust Lands           | <span style="display: inline-block; width: 15px; height: 15px; background-color: #ffccbc; border: 1px solid black; margin-right: 5px;"></span> Certified Vernal Pools   |
| <span style="display: inline-block; width: 15px; height: 15px; background: repeating-linear-gradient(45deg, transparent, transparent 2px, red 2px, red 4px); border: 1px solid black; margin-right: 5px;"></span> Public Schools                  |   |

### Special Sites

- Ecological Habitat Sites
- Water Resources Sites
- Recreational Sites
- Historical Sites
- Geologic Sites
- Scenic Sites



## Walden Woods Natural Area

### Open Space Framework 2013

- Agricultural
- Natural
- Built
- Corridor
- Walden Woods Natural Area

- Town Conservation Lands
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### Special Sites

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walking a dense trail network, and reflection on the values and implications associated with Thoreau's life and work.

Four major threats remain: (1) use of the former landfill area; (2) housing development; (3) heavy recreational use; and (4) the effects of Route 2 and Route 126.

Efforts should continue to find a mutually beneficial solution to protect the former landfill site in harmony with existing uses as an important linkage within the internationally significant Walden Pond area.

Housing development in the Fairhaven Hill Road area and perhaps the Goose Pond area remains a long-term concern. Heavy recreational use during warmer months tends to degrade the forest habitat on the Concord side of Walden Pond, as well as the pond margin and water quality. Limiting the total numbers of visitors, and channeling more of their usage to less-sensitive areas, remain a challenge that may require yet another major evaluation.

The manifold effects of Route 2, described in an earlier section, include safety for walkers crossing, a wildlife barrier separating the Town Forest and Walden Pond portions of this large natural area, and traffic noise/disturbance effects. Solutions include working with Mass Highways and others to provide wildlife connectivity across Route 2, perhaps with wildlife underpasses, an overpass, and crossable median barriers. An overpass for walkers by Route 126 would safely get people across Route 2. A realignment of Route 126 away from the pond would reduce the pedestrian safety hazard and potential salt-and-hazardous-chemical threat to Walden Pond. Attractive shrub-covered soil berms along portions of Routes 2 and 126 would significantly reduce the propagation of traffic noise. Depressing the road surface level of Route 2 a bit in this sandy soil would facilitate several of these solutions.

### ***Second Division Brook Area (N4)***

This large natural area is centered along Second Division Brook, which enters from Maynard and Sudbury and flows through a series of ponds. It extends eastward across the Old Rifle Range Town conservation land. A fair-sized portion of this woodland on sandy, gravelly soil may have existed as woodland throughout history.<sup>67</sup> The area contains a small pitch pine stand, various aquatic and stream

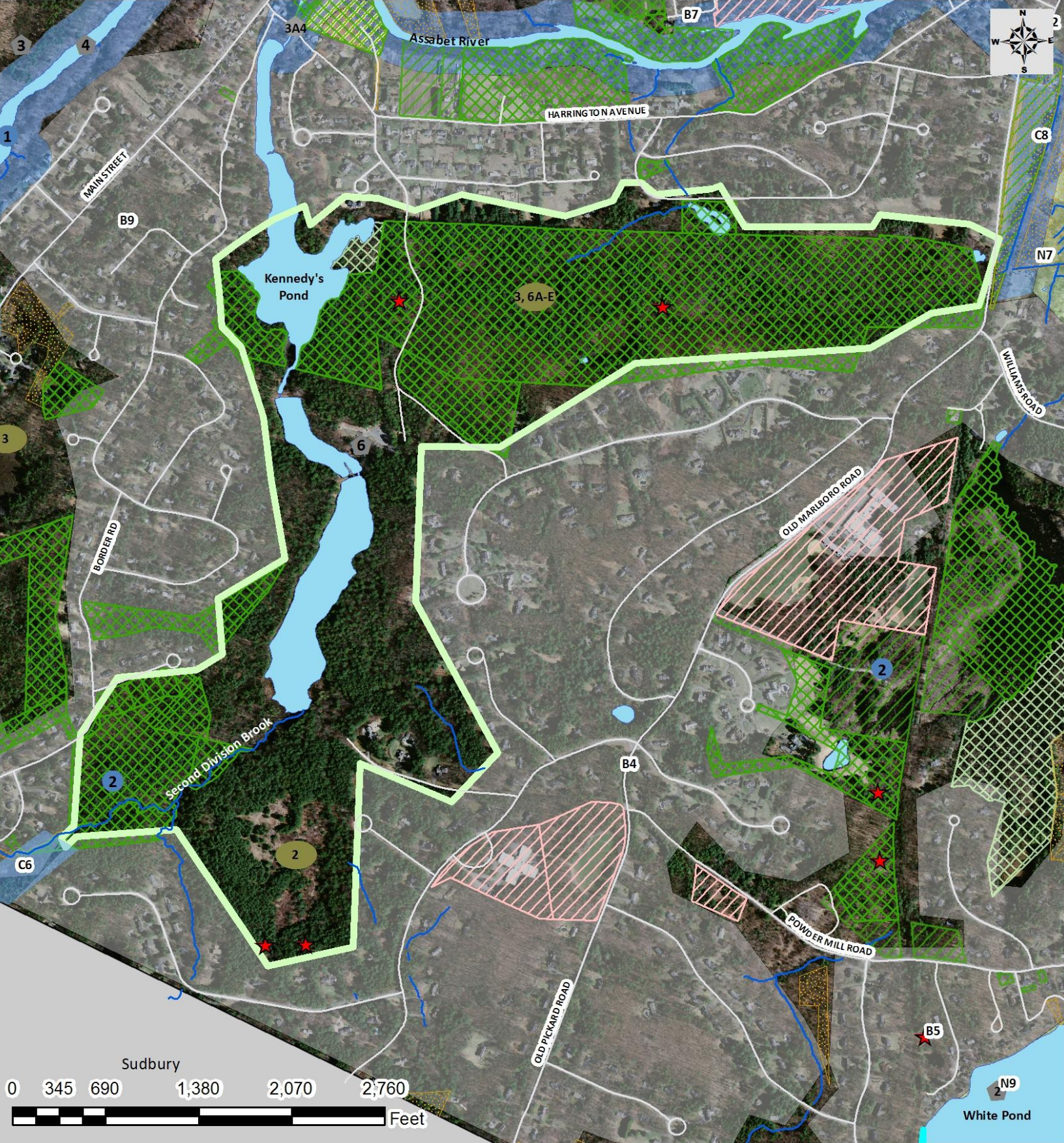
habitats, and some rare species.<sup>20</sup> It provides hunting and fishing for a sportsman's club and walking trails for the public. One key unprotected property is needed to protect the essential core of this large natural area. This area is somewhat squeezed by housing on its opposite sides, and the brook outlet to the Assabet River runs through housing lots, so human-related impacts remain as a management challenge. In the long term, connection for wildlife movement to the Jennie Dugan Kames area and eastward is important.

### ***Virginia Road Woods (N5)***

Much of this large natural area near Hanscom Airfield is owned by MassPort and is composed of wetlands, woods and fields. The diversity of habitats and species benefits from a relative lack of accessibility and use by the public. The area adjoins undeveloped natural land owned by MassPort to the north in Bedford and abuts the Lexington Rd./Bedford Levels large agricultural area to the south. Massport manages the natural area as an airport buffer, which involves tree cutting (most recently on Pine Hill in 2011) and other activities from time to time. If MassPort decided to dispose of or develop the property, preserving that one unprotected property would be necessary in order to protect the essential core of the large natural area. For the time being, a primary goal is to work with MassPort to ensure that the area continues to function as a "large natural area" for species enhanced by interior conditions and relative remoteness from human activities.

### ***Annursnac Hill/Strawberry Hill Rd. (N6)***

This large natural area, split by houses along Strawberry Hill Rd., is composed of two sections: the Town-owned Annursnac Hill conservation land and Baptist Brook to the south, and other protected open-space lands to the north. A wetland system both north and south of the road presumably provides some connectivity for wildlife. In the long term, options for better integrating the two sections with increasing wildlife connections should be evaluated. This large natural area is linked eastward to the Spencer Brook Valley corridor and the Estabrook Woods Area, and provides some wildlife linkage to natural land in northern Acton. Some of the Annursnac Hill/Strawberry Hill Rd. natural area is of archaeological importance.<sup>37</sup>



### Open Space Framework 2013

- Agricultural
- Natural
- Built
- Corridor
- Second Division Brook Natural Area

### Second Division Brook Natural Area

- Town Conservation Lands
- Other Town Owned Lands
- Conservation Restrictions
- Other Protected Lands
- Land Trust Lands
- Public Schools
- State-Owned Lands
- Federal-Owned Lands
- Rivers and Ponds
- Roads
- Certified Vernal Pools

### Special Sites

- Ecological Habitat Sites
- Water Resources Sites
- Recreational Sites
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- Scenic Sites



## Virginia Road Woods Natural Area

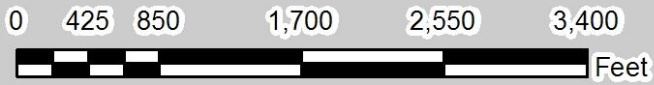
### Open Space Framework 2013

- Agricultural
- Natural
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- Corridor
- Virginia Road Woods Natural Area

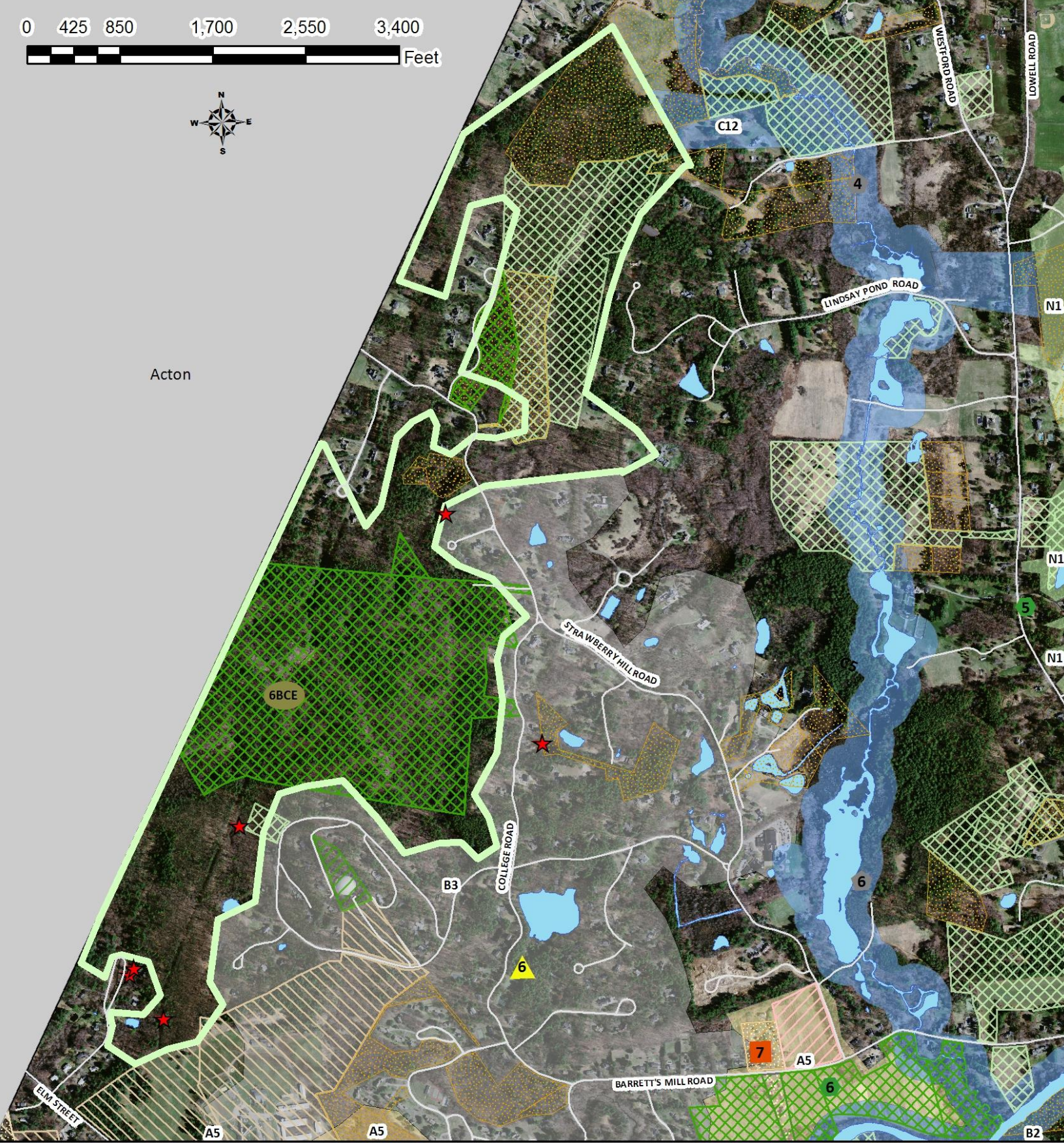
- Town Conservation Lands
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### Special Sites

- Ecological Habitat Sites
- Water Resources Sites
- Recreational Sites
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- Geologic Sites
- Scenic Sites



Acton



## Annursnac Hill/Strawberry Hill Road Natural Area

### Open Space Framework 2013

- Agricultural
- Natural
- Built
- Corridor
- Annursnac Hill/Strawberry Hill Road Natural Area

- Town Conservation Lands
- Other Town Owned Lands
- Conservation Restrictions
- Other Protected Lands
- Land Trust Lands
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- State-Owned Lands
- Federal-Owned Lands
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- Roads
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### Special Sites

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- Water Resources Sites
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- Historical Sites
- Geologic Sites
- Scenic Sites

### ***Jennie Dugan Kames (N7)***

The Jennie Dugan Kames large natural area was established in *Open Space and Recreation Plan 2004*. It is the only large natural area in the central portion of Concord. With wildlife and water-protection corridors, it effectively connects the somewhat isolated Second Division Brook natural area with Walden Woods. Jennie Dugan Kames also connects these to the Sudbury River Corridor and the Williams Rd./Sudbury Rd. large agricultural area. The Kames area is an interesting geological area of “kames” (hillocks) alternating with kettle-holes (depressions) and a large vernal pool, together with two forks of Jennie Dugan Brook and associated wetlands. Not surprisingly, habitat diversity is high, and rare species, especially related to the vernal pool, are present in considerable number.<sup>19, 20, 70</sup> The area is important for protecting both Jennie Dugan Brook and a town well, and it has archeological significance.<sup>37</sup> The bulk of the area is a partially forested portion of a private golf course. No expectation exists that the owner in the near term plans to dispose of or develop the property. Identifying the value of this exceptional property to the Town is a long-term look ahead. In the short term, management of the area to protect its biodiversity and natural processes as well as the needs of golfers is important as a challenging but eminently achievable goal.

### ***Hanscom (N7)***

The Hanscom natural area was newly created as part of this Open Space and Recreation Plan update to focus on the protection of grassland birds, which represent one of the fastest declining suite of birds in North America. In Massachusetts, grassland birds in general, and State-listed species in particular, have been increasingly confined to a small number of sites, many of which are airports, landfills, and military installations.<sup>10</sup>

Two grassland bird species protected under the Massachusetts Endangered Species Act (MESA) have been observed at Hanscom Field: the upland sandpiper and the grasshopper sparrow. Declines in both species are primarily a result of habitat loss, fragmentation, and degradation. In cooperation with the Massachusetts Audubon Society, Massport has traditionally managed airfield vegetation in a manner that maintains aviation safety while protect-



*Upland Sandpiper by Peter Trimble*

ing the grassland nesting areas of these species.

### ***White Pond (N8)***

The White Pond natural area was also created as part of this plan update, as a result of the BioMap 2, to protect this 43-acre sister pond to Walden Pond. White Pond is a sensitive deep glacial kettle pond contained by very steep sandy slopes, highly susceptible to degradation. Concerns have arisen regarding existing impacts to water quality and future potential impacts from increased recreational use associated with the Bruce Freeman Rail Trail. In 2013, the Town commenced development of a Watershed Management Plan for this significant resource.

## **B) Large Agricultural Areas**

The same soil that produces flourishing farms is ideal for septic systems and houses. Not surprisingly, development is a major threat to farmland, especially in a suburb. Indeed, these farmlands are treasures bulging with benefits – yet they are under attack by multiple threats. Although few social forces or government programs aid suburban farmers, the Town has periodically been a strong supporter of its farmers.<sup>1</sup> Ironically, at least in the Minute Man National Historical Park area, Concord is probably one of the few places in the nation where house lots are being replaced by protected farmland (the Park’s reason being to evoke the historic landscape, as opposed to conservation).

Concord’s five large agricultural areas include some private farms, but in many cases farmers lease land from town, state, federal, or private landowners. Good



#### Open Space Framework 2013

- Agricultural
- Natural
- Built
- Corridor
- Jennie Dugan Kames Natural Area

#### Jennie Dugan Kames Natural Area

- Town Conservation Lands
- Other Town Owned Lands
- Conservation Restrictions
- Other Protected Lands
- Land Trust Lands
- Public Schools
- State-Owned Lands
- Federal-Owned Lands
- Rivers and Ponds
- Roads
- Certified Vernal Pools

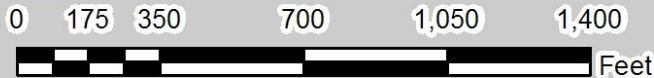
#### Special Sites

- Ecological Habitat Sites
- Water Resources Sites
- Recreational Sites
- Historical Sites
- Geologic Sites
- Scenic Sites



Bedford

Lincoln



### Open Space Framework 2013

- Agricultural
- Natural
- Built
- Corridor
- Hanscom Natural Area

### Hanscom Natural Area

- Town Conservation Lands
- Other Town Owned Lands
- Conservation Restrictions
- Other Protected Lands
- Land Trust Lands
- Public Schools
- State-Owned Lands
- Federal-Owned Lands
- Rivers and Ponds
- Roads
- Certified Vernal Pools

### Special Sites

- Ecological Habitat Sites
- Water Resources Sites
- Recreational Sites
- Historical Sites
- Geologic Sites
- Scenic Sites



## White Pond Natural Area

### Open Space Framework 2013

- Agricultural
- Natural
- Built
- Corridor
- White Pond Natural Area

- Town Conservation Lands
- Other Town Owned Lands
- Conservation Restrictions
- Other Protected Lands
- Land Trust Lands
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### Special Sites

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- Scenic Sites

farmland soils underlie the continued strong demand for farmland in Concord and adjacent Lincoln. An abundance of farmstands in town, plus direct market sales of organic and non-organic products (e.g., to local and Boston area restaurants), are important to the local farm economy.

Since the *1992 Open Space Plan*, several small farmland parcels in the Town have “grown” houses. However, significant farmland has also been protected since then in the large agricultural areas of Lexington Road, Nine Acre Corner and Williams Road-Sudbury Road. In the last case, the 76-acre Soutter land of fields and woods (near Route 2) and also the 43-acre Mattison Field at the southern end of the same area have been protected. So has Miller Farm, 52 acres of fields and woods in Nine Acre Corner. Such open-space successes have commonly resulted from partnerships, e.g., among the Town of Concord, Concord Land Conservation Trust, Trust for Public Land, Massachusetts Department of Food and Agriculture, and private citizens. Partnerships will doubtless be important in completing open-space protection for Concord’s five large agricultural areas. Whenever possible, the Town should support agricultural preservation restrictions (APRs) and Chapter 61A reduced property tax assessments to maintain farmland in these areas.

In addition to those areas within the five large agricultural patches, Concord is dotted with precious small and medium sized agricultural fields that are also important to the continued success of local farming enterprises and to the preservation of the Town’s rural character. Protection of these fields as



*East Quarter Farm Community Garden by Cherrie Corey*

farmland, while not essential to the preservation of the Open Space Framework, would benefit neighborhoods and the entire Town, by helping to keep our agricultural heritage alive.

### ***Nine Acre Corner (A1)***

The high quality soils in the Nine Acre Corner area have supported agriculture for at least 3 ½ centuries.<sup>37</sup> Today it is one of the two largest agricultural areas in Concord. It includes permanently protected APR land, Town land, and land trust holdings; trails connect it to nearby conservation areas. Rare wildlife habitat, grassland birds, and a special site for high avian biodiversity are present. Three unprotected parcels needed to protect the core of the large agricultural area are the highest priority issue. Encroachment by houses and by a private golf course at the southern end remains a threat.

### ***Lexington Road (A2)***

The Lexington Road agricultural area has greatly benefited from the Minute Man National Historical Park activities in restoring a historical agricultural landscape.<sup>37</sup> The area includes Town conservation lands and is partially connected internally by established walking trails, but is poorly connected by trails to Concord’s network of open spaces. Grassland birds breed in this large open area.<sup>20, 33</sup> Otherwise, impacts of some inholdings and heavy recreational usage around the Battle Road trail are concerns for open space protection and native forest wildlife.

### ***Monument Street (A3)***

This large agricultural area separated into two sections includes land with permanent APR protection, Town conservation land and properties with conservation restrictions. Organically grown products, hayfields, and horse farms are prominent. A neighborhood farmstand, special site, and important archaeological landscape are present.<sup>33</sup> The large open area has rich biodiversity, rare wildlife habitat, and, in the southern section, breeding grassland birds.<sup>20, 31</sup> Encroachment by houses and the general economic viability of farming remain as threats. In the long term, opportunities to connect the two sections of this large agricultural area should be considered.

### ***Williams Road/Sudbury Road (A4)***

This large agricultural area, also separated into two sections, contains Town conservation land, land trust property and land with conservation restrictions. Walking trails in both sections are connected to other nearby conservation lands. Scenic



## Nine Acre Corner Agricultural Area

### Open Space Framework 2013

- Agricultural
- Natural
- Built
- Corridor
- Nine Acre Corner Agricultural Area

- Town Conservation Lands
- Other Town Owned Lands
- Conservation Restrictions
- Other Protected Lands
- Land Trust Lands
- Public Schools
- State-Owned Lands
- Federal-Owned Lands
- Roads
- Certified Vernal Pools

### Special Sites

- Ecological Habitat Sites
- Water Resources Sites
- Recreational Sites
- Historical Sites
- Geologic Sites
- Scenic Sites



## Lexington Road Agricultural Area

### Special Sites

- Ecological Habitat Sites
- Water Resources Sites
- Recreational Sites
- Historical Sites
- Geologic Sites
- Scenic Sites

### Open Space Framework 2013

- Agricultural
- Natural
- Built
- Corridor
- Lexington Road Agricultural Area

- Town Conservation Lands
- Other Town Owned Lands
- Conservation Restrictions
- Other Protected Lands
- Land Trust Lands
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- Roads
- Certified Vernal Pools

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value played a role in protecting two major properties in recent years, and the Soutter land by Route 2 is grazed by cows as both a management tool and to portray an agrarian image of the town for the 50,000 drivers passing daily. Rare wildlife habitat is present and grassland birds breed in the southern section. Otherwise, the encroachment of houses, increased human use, and Route 2 effects are chief concerns for these two limited-size sections of the large agricultural area. In the long term, opportunities to expand farmland between the two sections should be considered.

### ***Reformatory/Barrett's Mill Road (A5)***

This large agricultural area is composed of three smallish sections in proximity. The Massachusetts Department of Correction owns and manages the southern two, and the northern section in the Barrett Farm Historic District includes some town land.<sup>37</sup> Routes 2 and 2A separate the two southern sections, which, however, provide a scenic entrance to Concord. Traffic disturbance and noise currently limit somewhat the ecological value of the area. The southern section is of archaeological value, and Colonel Barrett's homestead, a special site in the northern section, was acquired in 2004 for protection. The house was renovated by Save Our Heritage and the property was recently gifted to the National Park Service. The agricultural area is connected to the north with the Assabet River and Spencer Brook Valley corridors, and to the south with the Nashoba Brook/Warner's Pond corridor in Concord and Acton.

The land-use policy and management practices of the state, which are subject to an agreement with the Town of Concord, are critical to the future of the two southern sections. Continued livestock farming at the Northeastern Correctional Institution on Route 2A may be critical to its land remaining as open space. The Town has long played a key role in supporting this use of the land for livestock.

Near Route 2, the proposed redesign of the rotary and highway westward by the state should not degrade the large agricultural area or farming viability of this area. The highway project will include provisions for a wildlife corridor and rail trail near the Acton line, which are important for linking the farmland to other open space. Any changes in land management in these sections should be consistent with the conservation values of a large agricultural

area. Nashoba Brook and Warner's Pond both receive agricultural pollution runoff from the fields, and a corridor of natural, woody vegetation perhaps 100 feet wide should separate the water bodies from the fields. Encroachment by houses in the northern section, and human overuse in all three limited-size sections, remain as threats.

### **C. Wildlife and Water-Protection Corridors**

As described in detail in the *1992 Open Space Plan*, these are the essential linkages that tie Concord's open-space pattern together.<sup>31, 8</sup> Most or all provide for wildlife movement, protect streams or rivers, and provide walking paths. For wildlife movement, interruptions in continuous woody vegetation cover and the difficulty of crossing busy roads, including under existing bridges, are the main planning concerns.

Because of associated wetlands and other floodplain habitats, river corridors are often wider than corridors mapped in the Open Space Framework and the 400-ft. zone designated by the Massachusetts Rivers Protection Act.<sup>65, 50, 20</sup> All three rivers in Concord (except the Assabet upstream of Damon Mill) are federally designated as Wild and Scenic Rivers. The state attempts to maintain water-quality Class B ("swimmable and fishable") for the three rivers. Mercury effects on fish and aquatic life in the Sudbury, sewage treatment effluent in the Assabet, and warm water in the Assabet and Concord rivers are real challenges. Floodplains and wetlands, especially along the Sudbury and Concord, help to reduce flood levels. Stretches of houses alternating with protected natural lands dominate the river margins, providing ample human access, yet some protection to the water. But it limits wildlife movement and walking trails along the rivers. All three river corridors contain rare wildlife habitat and are rich in biodiversity, including at Egg Rock, where they meet.<sup>20</sup> River otter, beaver, Blanding's turtles, trout, unusual birds and plants, and even moose are occasionally seen. All three rivers also have major historical, scenic and recreational value.

All perennially running streams are subject to the limited-new-development-within-200-ft. provisions of the River Protection Act, which aids in establishing unbroken water-protection corridors. The state Wetland Protection Act provides for a 100-foot buffer zone from wetlands, where work is evaluated to minimize adverse impacts from human use. This is especially



## Monument Street Agricultural Area

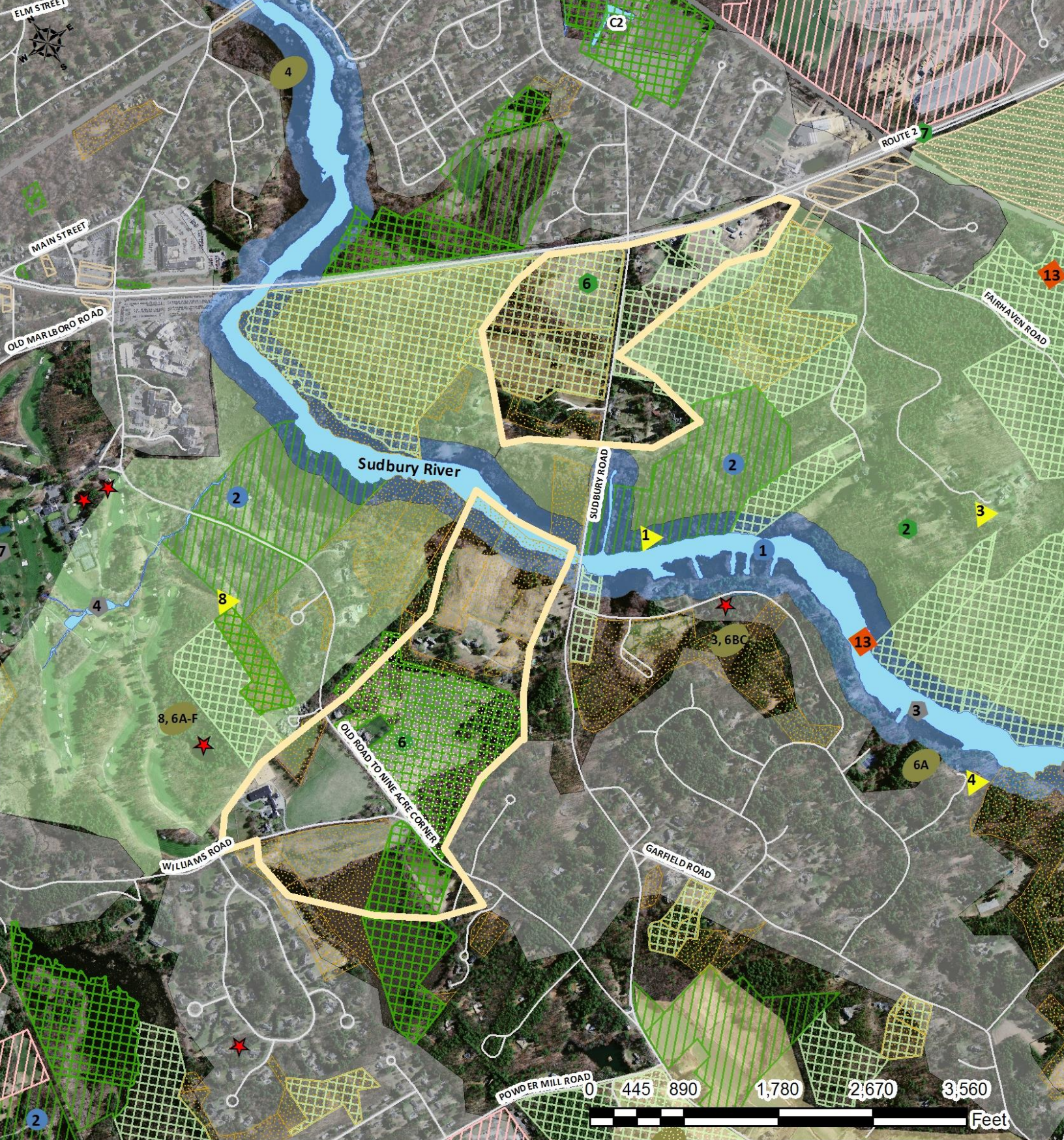
## Special Sites

### Open Space Framework 2013

- Agricultural
- Natural
- Built
- Corridor
- Monument Street Agricultural Area

- Town Conservation Lands
- Other Town Owned Lands
- Conservation Restrictions
- Other Protected Lands
- Land Trust Lands
- Public Schools
- State-Owned Lands
- Federal-Owned Lands
- Roads
- Certified Vernal Pools

- Ecological Habitat Sites
- Water Resources Sites
- Recreational Sites
- Historical Sites
- Geologic Sites
- Scenic Sites



**Open Space Framework 2013**

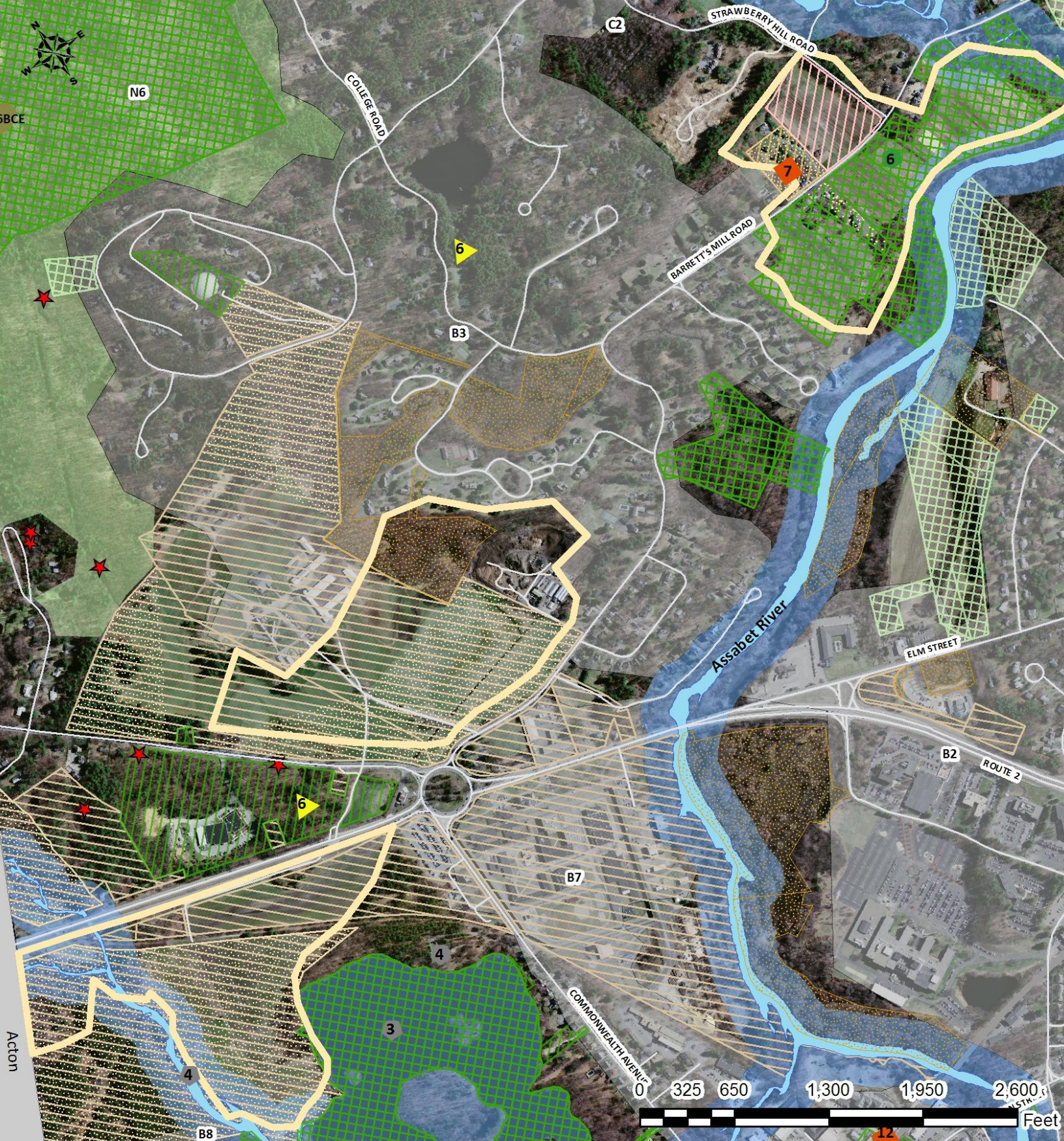
- Agricultural
- Natural
- Built
- Corridor
- Williams/Sudbury Roads Agricultural Area

**Williams/Sudbury Roads Agricultural Area**

- Town Conservation Lands
- Other Town Owned Lands
- Conservation Restrictions
- Other Protected Lands
- Land Trust Lands
- Public Schools
- State-Owned Lands
- Federal-Owned Lands
- Roads
- Certified Vernal Pools

**Special Sites**

- Ecological Habitat Sites
- Water Resources Sites
- Recreational Sites
- Historical Sites
- Geologic Sites
- Scenic Sites



# Open Space Framework 2013

- Agricultural
- Natural
- Built
- Corridor
- Reformatory/Barrett's Mill Road Agricultural Area

## Reformatory/Barrett's Mill Road

- Town Conservation Lands
- Other Town Owned Lands
- Conservation Restrictions
- Other Protected Lands
- Land Trust Lands
- Public Schools
- State-Owned Lands
- Federal-Owned Lands
- Roads
- Certified Vernal Pools

## Special Sites

- Ecological Habitat Sites
- Water Resources Sites
- Recreational Sites
- Historical Sites
- Geologic Sites
- Scenic Sites

important where wetlands are not close to a watercourse. With continued development in Concord and surrounding towns, hard-surface cover, which exacerbates flooding and the run-off of pollutants is an increasing problem in these corridors. Development also means more lawns, fertilizers, other chemicals, and septic leaching of phosphorus and nitrogen, which tend to degrade streams. Continuous strips of woody vegetation separating houses and lawns from streams greatly improve stream conditions, fish, and wildlife movement.

The protection of land parcels needed to preserve the integrity of wildlife and water corridors are a high priority for the Town. These corridors connect the highest-priority large natural areas and agricultural areas to form Concord's fundamental open-space pattern. Special characteristics or issues are encapsulated below for the 13 major corridors.

- C1. The *Assabet River Corridor* includes river water that has largely come through wastewater treatment facilities in upstream towns or the state prison. Surface runoff adds various pollutants from lawns, upstream built areas, and West Concord. Groundwater from nearby Acton and the Starmet hazardous-waste site is of long term concern.
- C2. The *Sudbury River Corridor* contains two Town wells and a regionally important canoe/boat rental site for river recreation. Mercury-contaminated water from upriver means that fish are unsafe to eat. A water chestnut invasion in Fairhaven Bay has been a recent concern, and periodic consideration of water extraction from the Sudbury Reservoir in Framingham bears long term watching. The riverfront area near Keyes Rd. should be evaluated for a canoe launch area for local residents, and should be linked to Keyes Rd. and the Calf Pasture with a Mill Brook trail.
- C3. The *Concord River Corridor* has a regional canoe launch area by Lowell Rd. for river recreation, and the North Bridge area is of major historic and recreational value. Elevated mercury levels are present in the river, and effluent from the Town wastewater treatment facility enters in the Great Meadows area.
- C4. The *Sawmill Brook Corridor* connects two of the Town's most important large natural areas and passes through a large agricultural area. Maintaining a good continuous strip of woody vegetation cover is important for both wildlife movement and stream protection.
- C5. The *Spencer Brook Corridor* is largely protected along its length, though certain key parcels remain unprotected. The corridor provides considerable recreation value, especially for local residents.
- C6. The *Second Division Brook Area to Sudbury Corridor* is a short stretch needing protection for wildlife movement and water quality.
- C7. The *Walden Woods to Jennie Dugan Kames Corridor* is mainly a short stretch of Sudbury River floodplain with wetland.
- C8. The *Second Division Brook /Jennie Dugan Kames to Assabet River Corridor* runs parallel to the abandoned railroad bed proposed to become the Bruce Freeman Rail Trail. A short break exists at the north end.
- C9. The *Virginia Rd. Woods to Walden Woods/Town Forest Corridor* runs across the Lexington Rd. agricultural area and along the Mill Brook, the latter in a wetland area.
- C10. The *Town Forest to Walden Pond Corridor* crosses Route 2 via the railroad underpass, near the high school and on residential land. Proposed changes for Route 2 would allow wildlife to cross the highway in the landfill area and also just west of Route 126, and would allow walkers to cross the highway near Route 126.
- C11. The *Nashoba Brook Corridor* links Acton and its Fort Pond Brook to Warner's Pond and the Assabet River in West Concord. Trails are proposed along the brook both in the downtown area and across Route 2.
- C12. The *Estabrook Woods to Annursneck Hill/Strawberry Hill Rd. Corridor* also connects to the Spencer Brook Valley Corridor across main protected land.
- C13. The *Great Meadows/Ball's Hill to Virginia Rd. Woods Corridor* crosses some protected land but the exact route remains to be worked out. This also is the proposed route to complete the approved Trail of the Concord Militia.